DELRIN 511 Series Acetal Homopolymer - Stock Shapes (rods, plates, tubes)

Chemical Designation
POM-H (Polyacetal (Homopolymer))

Colour
white

Density
1.42 g/cm^3

Main features
- good machinability
- high stiffness
- high fatigue strength
- high creep resistance
- good wear properties
- very good abrasion resistance

Target Industries
- automotive industry
- food engineering
- construction industry
- conveyor technology
- mechanical engineering
- electronics
- fixture construction
- home appliances
- gear manufacturing

Mechanical properties	condition	value	unit	test method		comment
Modulus of elasticity (tensile test)		450,000	psi	ASTM D 638		(1) public source data (2) publicly sourced data
Tensile strength at yield		10,000	psi	ASTM D 638		
Elongation at yield (tensile test)	@ 73 °F	18	%	ASTM D 638		
Elongation at break (tensile test)	@ 73 °F	25	%	ASTM D 638		
Flexural strength	@ 73 °F	16,000	psi	ASTM D 790		
Modulus of elasticity (flexural test)	@ 73 °F	520,000	psi	ASTM D 790		
Compression strength	@ 73 °F, 1% strain	2,100	psi	ASTM D 695		
Compression strength	@ 73 °F, 10% strain	16,500	psi	ASTM D 695		
Impact strength (Izod)	@ 73 °F	1.25	ft-lbs/in	ASTM D 256		
Rockwell hardness	@ 73 °F M Scale (R Scale)	95		ASTM D 785		
Coefficient of friction	Static 40 psi	0.20	%	ASTM D 3702	1)	
Coefficient of friction	Dynamic 40 psi, 50 fpm	0.35		ASTM D 3702	2)	
Wear rate	40 psi, 50 fpm	$55*10^{-10}$	in³-min/ft-lbs-hr	ASTM D 3702		

Thermal properties	condition	value	unit	test method		comment
Melting temperature		352	°F	DIN EN ISO 11357	1)	(1) Injection molded data (2) Injection molded data (3) Injection molded data (4) per UL746B, injection molded data
Deflection temperature	@ 66 psi	325	°F	ISO-R 75 Method B	2)	
Deflection temperature	@264 psi	225	°F	ISO-R 75 Method A	3)	
Service temperature	Intermittent	300	°F	-		
Service temperature	Long Term	185	°F	-	4)	
Thermal expansion (CLTE)		$6.8*10^{-5}$	in/in/°F	ASTM D 696		
Specific heat		0.35	BTU/lb-F°	-		

Electrical properties	condition	value	unit	test method	comment
volume resistance		$> 10^{15}$	Ω*cm	-	

Other properties	condition	value	unit	test method	comment
Moisture absorption	@ 24 hrs, 73 °F	0.20	%	ASTM D 570	
Moisture absorption	@ saturation, 73 °F	.90	%	ASTM D 570	

- Resin specification:
  ASTM D6778 POM0113 (ASTM D4181 withdrawn 2005, Replaced by D6778)
  Shapes specification:
  ASTM D6100 S-POM0112

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